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GEOLOGY.

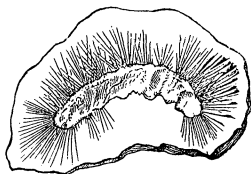
FOSSIL INSECTS.—In Mr. Scudder's paper in the February number, allusion was made to a fossil lace-winged insect which appeared to have a stridulating organ at the base of the wing, like that of crickets and

Fig. 1. some grasshoppers. We give here a figure (Fig. 1) of this wing, called by Mr. Scudder *Xenoneura antiquorum*. We have also copied the figure (Fig. 2) of the so-called caterpillar

lar (*Palæocampa anthrax*), which Messrs. Meek and Worthen have described in the Report of the Geology of Illinois. Mr. Scudder believes it to be a worm, although, in many external features, it strongly resembles the woolly caterpillars. Messrs. Meek and Worthen, who describe and figure this fossil in the Report of the Geological Survey of Illinois, vol. 2, Palæontology, 1866, state that "the specimen is not in a condition to show the head or feet; yet we are strongly inclined to believe from its form, and peculiar regularly arranged bundles of hairs, that it is a *Caterpillar*. If we are right in this suggestion, its discovery is certainly an interesting one, as it would present an evidence of the existence of *Lepidopterous* Insects, at a much earlier period in our world's history than has hitherto been suspected." It was found near the base of the Coal-measures, Morris, Illinois.



Fig. 2.



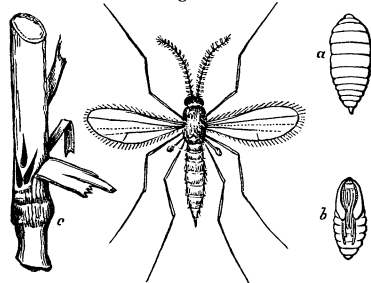
ENTOMOLOGICAL CALENDAR.

It should be remembered, that, unless otherwise stated, the dates given in the Calendars apply to the Northern States, especially New England, the same species appearing earlier southward.

Among the injurious hymenoptera, which abound late in this month, is the Rose Saw-fly (*Selandria rosæ*) and *S. cerasi*. The eggs are then laid, and the last of June, or early in July, the slug-like larvæ mature, and the perfect insects fly in July. Various Gall-flies now lay their eggs in the buds, leaves, and stems of oaks, maples, raspberries, and blueberry and other plants.

Dipterous Gall-flies are now laying their eggs in cereals. The Hessian-fly (*Cecidomyia destructor*, Fig. 1) has two broods, the fly appearing both in spring and autumn. The fly lays

Fig. 1.



twenty or thirty eggs in a crease in the leaf of the young plant. In about four days, in warm weather, they hatch, and the pale-red larvæ "crawl down the leaf, working their way in between it and the main stalk, passing little downward till they come to a joint, just above which they remain, a little below the surface of the ground, with the head towards the root of the plant. Here they imbibe the sap by suction alone, and, by the simple pressure of their bodies, become imbedded in the side of the stem. Two or three larvæ thus imbedded serve to weaken the plant, and cause it to wither and die. The second brood of larvæ remains through the winter in the flax-seed, or *puparium*. By turning the stubble with the plough in the autumn and early spring, its puparium may be destroyed, and thus its ravages may be checked. (Fig. 1 represents the female, which is about one-fourth as large as a mosquito: *a*, the larva; *b*, the pupa; and *c* represents the joint near the ground where the maggots live.) The same may be said of the Wheat-midge (*Cecidomyia tritici*), which attacks the wheat in the ear, and which transforms an inch deep beneath the surface.

Among the butterflies which appear this month are the Turnip-butterfly (*Pontia oleracea*), which lays its eggs the last of the month. The eggs hatch in a week or ten days, and in about two weeks the larva changes to a chrysalis. *Thanaos juvenalis* and *T. Brizo* fly late in May. The caterpillars live on the pea and other papilionaceous plants. *Thecla Auburniana*, *T. Nippon*, and other species fly in dry sunny fields, some in April. *Argynnis Myrina* flies from the last of May through June, and a second brood appears in August and September. *Vanessa J-album* and *V. interrogationis* appear in May, and again in August and September. The caterpillars of the latter species live on the elm, lime, and hop-vine. *Grapta comma* also feeds on the hop. *Alypia 8-maculata* flies at this time, and in August its larva feeds on the grape. *Sphinx gordius*, *S. Carolina*, and other *Sphinges* and *Sesia* (the Clear-winged Moth), appear the last of May. *Arctia Arge*, *A. virgo*, *A. phalerata*, and other species, fly from the last of May through the summer. *Hyphantria textor*, the Fall-weaver, is found in May and June. The moth of the Salt-marsh Caterpillar appears at this time, and various



The White-pine Weevil (*Pissodes strobi*, Fig. 2 *a*, larva; Fig. 2 *b*, pupa; and Fig. 2, beetle) flies about in warm days. We have found its burrows winding irregularly over the inner surface of the bark and leading into the sap-wood. Each cell, in which it hibernates, in the middle of March, contains the yellowish-white

footless grub. Early in April it changes to a pupa, and a month after the beetle appears, and in a few days deposits its egg under the bark of old pine trees. It also oviposits in the terminal shoots of pine saplings,

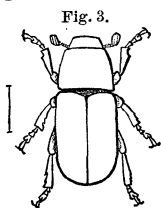


Fig. 3.

dwarfing and permanently deforming the tree. Associated with this weevil we found the smaller, rounder, more cylindrical, whitish grubs of the *Hylurgus terebrans* (Fig. 3), which mines the inner layers of the bark, slightly grooving the sapwood. Later in April it pupates,

and its habits accord in general with those of *Pissodes strobi*. Another Pine-weevil (*Hylobius pales*, Fig. 4) also abounds at this time.

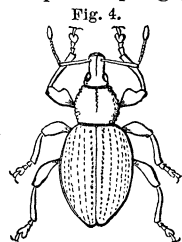


Fig. 4.

Cylindrical bark-borers, which are little round weevil-like beetles, are now flying about fruit-trees, to lay their eggs in the bark. Associated with the *Pissodes*, we found in April the galleries of *Tomicus pini*, branching out from a common centre. They are filled up with fine sawdust, and,



Fig. 5.

according to Dr. Fitch, are notched in the sides "in which the eggs have been placed, where they would remain undisturbed by the beetle as it crawled backwards and forth through the gallery." These little beetles have not the long snout of the weevils, hence they cannot bore through the outer bark, but enter into the burrows made the preceding year, and distribute the eggs along the side (Fitch).

Another *Tomicus*, more dangerous than the preceding, feeds exclusively in the sap-wood, running solitary galleries for a distance of two inches towards the centre of the tree. We figure *Tomicus xylographus* Say (Fig. 5). It is the most formidable enemy to the white pine in the North, and the yellow pine in the South that we have. It also flies in May. *Ptinus fur* (Fig. 6) is now found in out-houses, and is destructive to cloth, furs, etc., resembling the Larder-beetle (*Dermestes*) in its habits. It is fourteen-hundredths of an inch in length.

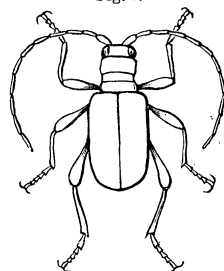


Fig. 6.

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

ACADEMY OF NATURAL SCIENCES. Philadelphia, Oct. 1, 1867.—Dr. Hays exhibited a fine specimen of Malachite; he also exhibited several specimens of hair from Albino negroes. Dr. Leidy spoke of the white Albino, and mentioned that the term "wool" was a misnomer as applied